

REMARKS

This application has been reviewed in light of the Office Action dated July 15, 2003. Claims 1-3 and 7-11 are pending in this application. Claims 1 and 8, which are the independent claims, have been amended to define still more clearly what Applicants regard as their invention, in terms that distinguish over the art of record. Favorable reconsideration is requested.

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent Application Laid-Open No. 09-098970 (Endo et al.) in view of Japanese Patent Application Laid-Open No. 06-313392 (Umibe et al.); Claims 2, 3, and 9 were rejected as being obvious from Endo et al. in view of Umibe et al. and further in view of U.S. Patent No. 5,591,963 (Takeda et al.); Claim 7 was rejected as being obvious from Endo et al. in view of Takeda et al., and further in view of U.S. Patent No. 5,591,960 (Furukawa et al.) and U.S. Patent No. 4,740,710 (Arita); Claim 8 was rejected as being obvious from Endo et al. in view of Umibe et al. and U.S. Patent No. 5,596,198 (Perez-Mendez), or, in the alternative, in view of Umibe et al. and U.S. Patent No. 4,179,100 (Sashin et al.); Claim 10 was rejected as being obvious from Endo et al. in view of Umibe et al. and Perez-Mendez, or, in the alternative, in view of Umibe et al. and Sashin et al., and further in view of Japanese Patent Application Laid-Open No. 63-250634A (Takeuchi et al.); and Claim 11 was rejected as being obvious from Endo et al. in view of Umibe et al., and further in view of Japanese Patent Application Laid-Open No. 6-029510A (Hikiji et al.). Applicants respectfully traverse these rejections.

Applicants submit that amended independent Claims 1 and 8, together with the remaining, dependent, claims are patentably distinct from the proposed combination of

the cited prior art for at least the following reasons.

The aspect of the present invention set forth in Claim 1 is a photoelectric converter that includes a photoelectric conversion element of a laminated structure including a first electrode layer, an insulation layer, a photoelectric conversion semiconductor layer, an injection blocking layer, a second electrode layer, and a switching means. The insulation layer is for blocking the passage of holes and electrons. The injection blocking layer blocks the injection of holes or electrons (but not both) into the photoelectric conversion semiconductor layer. The switching means operates the photoelectric converter by switching through operation modes including a photoelectric conversion mode, an idling mode, and a refresh mode. In the photoelectric conversion mode are emitted holes or electrons, whichever are emitted in the idling mode, generated in accordance with an amount of incident light and read image information. In the idling mode, which is not used for reading image information, holes or electrons, whichever are emitted in the photoelectric conversion mode, are emitted from the photoelectric conversion element, and the other are emitted in the refresh mode.

Among other notable features of Claim 1 are that in the photoelectric conversion mode are emitted holes or electrons, whichever are emitted in the idling mode which is not used for reading image information, generated in accordance with an amount of incident light and read image information from the photoelectric conversion element. Support in the specification for these features can be found at least from page 52, line 6, to page 55, line 13, with reference to Figure 22.

Endo et al. relates to x-ray photographing equipment. The Office Action at page 3 states that Endo et al. teaches, among other things, a photoelectric conversion mode

for emitting electrons produced by the photon-induced electron-hole pair creation and thus accumulating holes in accordance with an amount of incident light. The Examiner asserts that section [0053] of the specification, lines 1-17, provide support for this feature.

Applicants submit, however, that nothing in this section, or any other section of Endo et al., would teach or suggest a photoelectric conversion mode in which are emitted holes or electrons, whichever are emitted in an idling mode, in accordance with an amount of incident light and reads image information, as recited in Claim 1.

Umibe et al. relates to a photoelectric conversion device, cited by the Office Action as teaching an accumulation or idling mode by permitting the emission of electrons, i.e., the same charge carrier type as emitted in the photoelectric conversion mode. The Office Action at page 4 also cites section [0051] and drawing 8 of Umibe et al. as teaching “the inclusion of an accumulation mode whereby the G electrode becomes open with regard to direct current, thus allowing any electrons created due to incidence of light to be accumulated as a charge of a capacitor.” Applicants submit, however, that nothing in this section, or any other section, of Umibe et al. would teach or suggest an idling mode, which is not used for reading image information, that emits one of the holes or the electrons, whichever one is emitted in the photoelectric conversion mode, from the photoelectric conversion element.

Applicants submit that, at least for the reasons discussed above, the proposed combination of Endo et al. and Umibe et al., assuming such combination would even be permissible, would still fail to teach or suggest the photoelectric conversion mode and the idling mode, as recited in Claim 1. For at least this reason, Applicants submit that Claim 1 is patentable over these two patents, taken separately or in any proper combination.

Independent Claim 8 is a system claim that also recites, among other features, a photoelectric converter having a photoelectric conversion mode and an idling mode as discussed above in connection with Claim 1. In addition, Applicants submit that nothing in the proposed combination of Endo et al. with Umibe et al. and Perez-Mendez, or, in the alternative, with Umibe et al. and Sashin et al. would teach or suggest the photoelectric conversion mode and idling mode as recited in Claim 8. Accordingly, Claim 8 is believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

A review of the other art of record has failed to reveal anything that, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as applied against the independent claims herein. Therefore, those claims are respectfully submitted to be patentable over the art of record.

The other rejected claims in this application depend from one or another of the independent claims discussed above and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and allowance of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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